







1810 1820 1830 1840 1850 1860 1870 1880 1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 20

24653847.f VFEVLGCGNLKLIRKSNYRGIPPLANVKTITRQVLGELDYLHCKCIIHTDIDKPENVILCVDEPHVRSLATEATQLYCMNSKMPYSLVSRAPEKEYREPPITGKMSKNRKKKKKKAKKRMLFKQQRDYLEQADGQCAINPNEVQNGDAGISDADEYFDANSEDNVHVAAGQPSRKQREERKAPPEQSEEAQEQQDPLTEG  
 24653851.f VFEVLGCGNLKLIRKSNYRGIPPLANVKTITRQVLGELDYLHCKCIIHTDIDKPENVILCVDEPHVRSLATEATQLYCMNSKMPYSLVSRAPEKEYREPPITGKMSKNRKKKKKKAKKRMLFKQQRDYLEQADGQCAINPNEVQNGDAGISDADEYFDANSEDNVHVAAGQPSRKQREERKAPPEQSEEAQEQQDPLTEG  
 24653849.f VFEVLGCGNLKLIRKSNYRGIPPLANVKTITRQVLGELDYLHCKCIIHTDIDKPENVILCVDEPHVRSLATEATQLYCMNSKMPYSLVSRAPEKEYREPPITGKMSKNRKKKKKKAKKRMLFKQQRDYLEQADGQCAINPNEVQNGDAGISDADEYFDANSEDNVHVAAGQPSRKQREERKAPPEQSEEAQEQQDPLTEG  
 1how\_Ymr21 VFEVLGCGNLKLIRKSNYRGIPPLANVKTITRQVLGELDYLHCKCIIHTDIDKPENVILCVDEPHVRSLATEATQLYCMNSKMPYSLVSRAPEKEYREPPITGKMSKNRKKKKKKAKKRMLFKQQRDYLEQADGQCAINPNEVQNGDAGISDADEYFDANSEDNVHVAAGQPSRKQREERKAPPEQSEEAQEQQDPLTEG  
 25146966.w LFDFLMGSIPFDLKLKHNHYKEYPMEQIHLTQQLCAVFLBDNRLTHTTDIKPENILFVDSRY  
 25146963.w LFDFLMGSIPFDLKLKHNHYKEYPMEQIHLTQQLCAVFLBDNRLTHTTDIKPENILFVDSRY  
 24650897.f VFEMLGCGVPFDLRENNYEYYPDODVVRHMAVLCVFLBNRLTHTTDIKPENILFVDSY  
 28571918.f VFEMLGCGVPFDLRENNYEYYPDODVVRHMAVLCVFLBNRLTHTTDIKPENILFVDSY  
 17137408.f VFEMLGCGVPFDLRENNYEYYPDODVVRHMAVLCVFLBNRLTHTTDIKPENILFVDSY  
 17137410.f VFEMLGCGVPFDLRENNYEYYPDODVVRHMAVLCVFLBNRLTHTTDIKPENILFVDSY  
 31219578.i AFEMLGCGVPFDLKDNNYYEYYPDODVVRHMAVLCVFLBNRLTHTTDIKPENILFVDSY  
 31219585.i AFEMLGCGVPFDLKDNNYYEYYPDODVVRHMAVLCVFLBNRLTHTTDIKPENILFVDSY  
 CLK2.h SFELLGCGTFDFLKDNNYYEYYPDODVVRHMAVLCVFLBNRLTHTTDIKPENILFVDSY  
 6671764.m SFELLGCGTFDFLKDNNYYEYYPDODVVRHMAVLCVFLBNRLTHTTDIKPENILFVDSY  
 34858135.m SFELLGCGTFDFLKDNNYYEYYPDODVVRHMAVLCVFLBNRLTHTTDIKPENILFVDSY  
 31982417.m AFELLGCGTFDFLKDNNYYEYYPDODVVRHMAVLCVFLBNRLTHTTDIKPENILFVDSY  
 19705447.m AFELLGCGTFDFLKDNNYYEYYPDODVVRHMAVLCVFLBNRLTHTTDIKPENILFVDSY  
 CLK3.h AFELLGCGTFDFLKDNNYYEYYPDODVVRHMAVLCVFLBNRLTHTTDIKPENILFVDSY  
 CLK4.h VFELLGCGTFDFIKENSFLFCIDHTROMAYQICISINFLBNRLTHTTDIKPENILFVDSY  
 6671766.m VFELLGCGTFDFIKENSFLFCIDHTROMAYQICISINFLBNRLTHTTDIKPENILFVDSY  
 CLK1.h VFELLGCGTFDFIKENSFLFCIDHTROMAYQICISINFLBNRLTHTTDIKPENILFVDSY  
 34876637.m VFELLGCGTFDFIKENSFLFCIDHTRIKMAYQICISGVNPLBNRLTHTTDIKPENILFVDSY  
 31208949.i AFEMLGCGVDFDFMKDNRYEFPPNEQVRENSYLCGAVNPLBHKRVDLTDIKPENILFVDSYNT  
 1fvv\_CDK2 IFEELHDLKKFMDASALTQIPPLKSYLFIOLQQLGFLCHHRVLDRLDKPONLINTEG  
 1cm8\_P38g VMPFMGHDGLKIMKHEKLGD-EDRIOEWYOMKGLRVHAA-CIIEFRDILKPNLAVNEDC  
 1jwh\_CK2a VFEVNVNDPDKQMLQTLTD-YDIFRMYWYHKAQYCHM-GIMFRDVNPNVLDHEHR

2010 2020 2030 2040 2050 2070 2080 2090 2100 2110 2120 2130 2140 2150 2160 2170 2180 2190 22

24653847.f TD~~K~~AKKKKKKKKKNSQKGQ~~P~~OLENST~~S~~AAESSALKSQANGSNT~~S~~NNKNT~~S~~NS~~S~~SK~~S~~KISSGVENT~~S~~ATNGPHNS~~N~~STLP~~T~~PPPPPQAKH~~K~~AKKKD~~P~~AL~~D~~EN~~V~~HVKAD~~G~~NA~~C~~VD~~R~~E~~F~~TED  
 24653851.f TD~~K~~AKKKKKKKKKNSQKGQ~~P~~OLENST~~S~~AAESSALKSQANGSNT~~S~~NNKNT~~S~~NS~~S~~SK~~S~~KISSGVENT~~S~~ATNGPHNS~~N~~STLP~~T~~PPPPPQAKH~~K~~AKKKD~~P~~AL~~D~~EN~~V~~HVKAD~~G~~NA~~C~~VD~~R~~E~~F~~TED  
 24653849.f TD~~K~~AKKKKKKKKKNSQKGQ~~P~~OLENST~~S~~AAESSALKSQANGSNT~~S~~NNKNT~~S~~NS~~S~~SK~~S~~KISSGVENT~~S~~ATNGPHNS~~N~~STLP~~T~~PPPPPQAKH~~K~~AKKKD~~P~~AL~~D~~EN~~V~~HVKAD~~G~~NA~~C~~VD~~R~~E~~F~~TED  
 1how\_Ymr21 .....-SPEN-  
 25146966.w TDKLVDK-KP~~I~~PRV~~H~~ESTVRLIDFGSATFBEHHSTI  
 24650897.f TSHY~~N~~HKINIREVRV~~N~~NTVRLIDFGSATFBEHHSTI  
 28571918.f TSHY~~N~~HKINIREVRV~~N~~NTVRLIDFGSATFBEHHSTI  
 17137408.f TSHY~~N~~HKINIREVRV~~N~~NTVRLIDFGSATFBEHHSTI  
 17137410.f TSHY~~N~~HKINIREVRV~~N~~NTVRLIDFGSATFBEHHSTI  
 31219578.i TTTTV~~R~~KNREVRV~~N~~CTIRLIDFGSATFDDBEHHSTI  
 31219585.i TTTTV~~R~~KNREVRV~~N~~CTIRLIDFGSATFDDBEHHSTI  
 CLK2.h ELTYN~~E~~KKR~~D~~ER~~P~~SV~~K~~ST~~V~~V~~D~~FGSATFBEHHSTI  
 6671764.m ELTYN~~E~~KKR~~D~~ER~~P~~SV~~K~~ST~~V~~V~~D~~FGSATFBEHHSTI  
 34858135.m ELTYN~~E~~KKR~~D~~ER~~P~~SV~~K~~ST~~V~~V~~D~~FGSATFBEHHSTI  
 31982417.m ELTYN~~E~~KKR~~D~~ER~~P~~SV~~K~~ST~~V~~V~~D~~FGSATFBEHHSTI  
 19705447.m ELTYN~~E~~KKR~~D~~ER~~P~~SV~~K~~ST~~V~~V~~D~~FGSATFBEHHSTI  
 CLK3.h ELTYN~~E~~KKR~~D~~ER~~P~~SV~~K~~ST~~V~~V~~D~~FGSATFBEHHSTI  
 6671766.m ELTYN~~E~~KKR~~D~~ER~~P~~SV~~K~~ST~~V~~V~~D~~FGSATFBEHHSTI  
 CLK4.h ELTYN~~E~~KKR~~D~~ER~~P~~SV~~K~~ST~~V~~V~~D~~FGSATFBEHHSTI  
 34876637.m ELTYN~~E~~KKR~~D~~ER~~P~~SV~~K~~ST~~V~~V~~D~~FGSATFBEHHSTI  
 31208949.i ELTYN~~E~~KKR~~D~~ER~~P~~SV~~K~~ST~~V~~V~~D~~FGSATFBEHHSTI  
 1fvv\_CDK2 .....-A~~I~~KLADFG~~G~~LA~~R~~AG~~G~~V~~V~~RT~~T~~THEV~~L~~IV~~A~~PE~~V~~ILLGCKY~~S~~TA~~V~~DI~~S~~~~L~~~~C~~  
 1cm8\_P38g ELXLLD~~G~~LA~~R~~AG~~G~~V~~V~~RT~~T~~THEV~~L~~IV~~A~~PE~~V~~ILLGCKY~~S~~TA~~V~~DI~~S~~~~L~~~~C~~  
 1jwh\_CK2a RLRLID~~G~~LA~~R~~AG~~G~~V~~V~~RT~~T~~THEV~~L~~IV~~A~~PE~~V~~ILLGCKY~~S~~TA~~V~~DI~~S~~~~L~~~~C~~

2210 2220 2230 2240 2250 2260 2270 2280 2290 2300 2310 2320 2330 2340 2350 2360 2370 2380 2390 24

24653847.f M~~V~~FELA~~G~~CDL~~F~~E-PHS~~G~~ES~~T~~R~~D~~EDHIA~~H~~IB~~B~~LLC~~I~~P~~R~~RE~~I~~LLN-GTYA~~K~~AKS~~F~~TR~~S~~ELRN~~I~~SC~~K~~LE~~W~~GLMD~~V~~LL~~E~~  
 24653851.f M~~V~~FELA~~G~~CDL~~F~~E-PHS~~G~~ES~~T~~R~~D~~EDHIA~~H~~IB~~B~~LLC~~I~~P~~R~~RE~~I~~LLN-GTYA~~K~~AKS~~F~~TR~~S~~ELRN~~I~~SC~~K~~LE~~W~~GLMD~~V~~LL~~E~~  
 24653849.f M~~V~~FELA~~G~~CDL~~F~~E-PHS~~G~~ES~~T~~R~~D~~EDHIA~~H~~IB~~B~~LLC~~I~~P~~R~~RE~~I~~LLN-GTYA~~K~~AKS~~F~~TR~~S~~ELRN~~I~~SC~~K~~LE~~W~~GLMD~~V~~LL~~E~~  
 1how\_Ymr21 L~~I~~FELI~~G~~CDL~~F~~E-PDEGH~~S~~YTK~~D~~EDHIA~~H~~IB~~B~~LLC~~I~~P~~R~~RE~~I~~LLN-GKY~~T~~RFF~~N~~SR~~L~~LLRN~~I~~SC~~K~~LE~~W~~GLMD~~V~~LL~~E~~  
 25146966.w ILYELY~~G~~IV~~L~~LFQ-THE~~N~~RE~~H~~LLAMMER~~V~~LC~~I~~P~~L~~RM~~K~~RL~~T~~KE~~F~~FG~~I~~GR~~D~~W~~V~~NT~~S~~ADA~~A~~YY~~V~~RD~~N~~CKP~~L~~  
 25146963.w ILYELY~~G~~IV~~L~~LFQ-THE~~N~~RE~~H~~LLAMMER~~V~~LC~~I~~P~~L~~RM~~K~~RL~~T~~KE~~F~~FG~~I~~GR~~D~~W~~V~~NT~~S~~ADA~~A~~YY~~V~~RD~~N~~CKP~~L~~  
 24650897.f ILFELI~~G~~IV~~L~~LFQ-THD~~N~~RE~~H~~LLAMMER~~I~~LC~~I~~P~~C~~Y~~R~~M~~R~~NT~~H~~LY~~S~~K~~I~~TY~~F~~Y~~H~~GL~~D~~DE~~K~~SS~~A~~YY~~V~~RD~~C~~CKP~~L~~  
 28571918.f ILFELI~~G~~IV~~L~~LFQ-THD~~N~~RE~~H~~LLAMMER~~I~~LC~~I~~P~~C~~Y~~R~~M~~R~~NT~~H~~LY~~S~~K~~I~~TY~~F~~Y~~H~~GL~~D~~DE~~K~~SS~~A~~YY~~V~~RD~~C~~CKP~~L~~  
 17137408.f ILFELI~~G~~IV~~L~~LFQ-THD~~N~~RE~~H~~LLAMMER~~I~~LC~~I~~P~~C~~Y~~R~~M~~R~~NT~~H~~LY~~S~~K~~I~~TY~~F~~Y~~H~~GL~~D~~DE~~K~~SS~~A~~YY~~V~~RD~~C~~CKP~~L~~  
 17137410.f ILFELI~~G~~IV~~L~~LFQ-THD~~N~~RE~~H~~LLAMMER~~I~~LC~~I~~P~~C~~Y~~R~~M~~R~~NT~~H~~LY~~S~~K~~I~~TY~~F~~Y~~H~~GL~~D~~DE~~K~~SS~~A~~YY~~V~~RD~~C~~CKP~~L~~  
 31219578.i IMFELI~~G~~IV~~L~~LFQ-THD~~N~~RE~~H~~LLAMMER~~I~~LC~~I~~P~~C~~Y~~R~~M~~R~~NT~~H~~LY~~S~~K~~I~~TY~~F~~Y~~H~~GL~~D~~DE~~K~~SS~~A~~YY~~V~~RD~~C~~CKP~~L~~  
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 6671764.m I~~I~~FELI~~G~~IV~~L~~LFQ-THD~~N~~RE~~H~~LLAMMER~~I~~LC~~I~~P~~C~~Y~~R~~M~~R~~NT~~H~~LY~~S~~K~~I~~TY~~F~~Y~~H~~GL~~D~~DE~~K~~SS~~A~~YY~~V~~RD~~C~~CKP~~L~~  
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 19705447.m I~~I~~FELI~~G~~IV~~L~~LFQ-THD~~N~~RE~~H~~LLAMMER~~I~~LC~~I~~P~~C~~Y~~R~~M~~R~~NT~~H~~LY~~S~~K~~I~~TY~~F~~Y~~H~~GL~~D~~DE~~K~~SS~~A~~YY~~V~~RD~~C~~CKP~~L~~  
 CLK3.h I~~I~~FELI~~G~~IV~~L~~LFQ-THD~~N~~RE~~H~~LLAMMER~~I~~LC~~I~~P~~C~~Y~~R~~M~~R~~NT~~H~~LY~~S~~K~~I~~TY~~F~~Y~~H~~GL~~D~~DE~~K~~SS~~A~~YY~~V~~RD~~C~~CKP~~L~~  
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 34876637.m I~~I~~FELI~~G~~IV~~L~~LFQ-THD~~N~~RE~~H~~LLAMMER~~I~~LC~~I~~P~~C~~Y~~R~~M~~R~~NT~~H~~LY~~S~~K~~I~~TY~~F~~Y~~H~~GL~~D~~DE~~K~~SS~~A~~YY~~V~~RD~~C~~CKP~~L~~  
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 1fvv\_CDK2 I~~I~~FELI~~G~~IV~~L~~LFQ-THD~~N~~RE~~H~~LLAMMER~~I~~LC~~I~~P~~C~~Y~~R~~M~~R~~NT~~H~~LY~~S~~K~~I~~TY~~F~~Y~~H~~GL~~D~~DE~~K~~SS~~A~~YY~~V~~RD~~C~~CKP~~L~~  
 1cm8\_P38g I~~I~~FELI~~G~~IV~~L~~LFQ-THD~~N~~RE~~H~~LLAMMER~~I~~LC~~I~~P~~C~~Y~~R~~M~~R~~NT~~H~~LY~~S~~K~~I~~TY~~F~~Y~~H~~GL~~D~~DE~~K~~SS~~A~~YY~~V~~RD~~C~~CKP~~L~~  
 1jwh\_CK2a I~~I~~FELI~~G~~IV~~L~~LFQ-THD~~N~~RE~~H~~LLAMMER~~I~~LC~~I~~P~~C~~Y~~R~~M~~R~~NT~~H~~LY~~S~~K~~I~~TY~~F~~Y~~H~~GL~~D~~DE~~K~~SS~~A~~YY~~V~~RD~~C~~CKP~~L~~

